Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.



Human Nutrition Information Service

Home Economics Research Report Number 45

Iron Content of Food

Jacob Exler

For sale by the Su	Documents, U.S. gton, D.C. 204	t Printing Off	ice

IRON CONTENT OF FOOD, Jacob Exler
Consumer Nutrition Division, Human Nutrition Information Service,
U.S. Department of Agriculture,
Hyattsville, Maryland 20782.
Home Economics Research Report Number 45

ABSTRACT

This publication presents newly compiled compositional data on the iron content of 277 foods commonly eaten in this country. Values are given only for food groups for which sections of the revised Agriculture Handbook No. 8, Composition of Foods... Raw, Processed, Prepared (AH-8), have not yet been published. This provisional report will be superseded by subsequent sections of AH-8 as they are published.

The level of reliability of the values is given by the number of observations on which the mean values were based and the corresponding sample standard errors. Another measure of reliability, included in a table of food composition for the first time, is the confidence code. This code, based on a critical evaluation of the sources of data from which the mean values were derived, gives an indication of the confidence one can have in how closely the iron content of a food item is represented by the published value.

KEYWORDS: Iron content, foods, reliability, quality index, confidence code.

ACKNOWLEDGMENTS

The author gratefully acknowledges Susan A. Akridge for her technical assistance; the food group specialists of the Nutrient Data Research Branch, Consumer Nutrition Division, for providing their collected data; Wayne R. Wolf and Mary K. Moss, Nutrient Composition Laboratory, Beltsville Human Nutrition Research Center, Kent K. Stewart, Virginia Polytechnic Institute and State University, and Frank N. Hepburn, Nutrient Data Research Branch, for their critical discussions in the development of the confidence codes and alternate means of nutrient data evaluation; Johna L. Pierce for editorial and production assistance; and Mildred T. Pati for assistance with format and word processing.

		Page
CONTENTS	INTRODUCTION	1
	RELIABILITY OF VALUES	2
	DESCRIPTION OF THE TABLE	3
	IRON BIOAVAILABILITY	4
	TABLES 1 Criteria for quality index	2 3
	Bakery products Beef Beverages Fish products Fruits and fruit juices Grain products Lamb, veal, and game Legume products Mixed dishes Nuts and seeds Pork products Sugars and sweets Vegetable products	5 6 6 9 10 10
	LITERATURE CITED	15

Iron Content of Food

Jacob Exler¹

INTRODUCTION

Many people in the United States have dietary intakes of iron, as estimated by using current food consumption tables, which are below the Recommended Dietary Allowance (RDA) $(\underline{1}, \underline{2})^2$. To improve estimates of intakes and provide the basis for dietary guidance, more reliable data on the iron content of food are necessary.

This provisional report updates many of the iron values in the 1963 edition of Agriculture Handbook No. 8, Composition of foods...raw, processed, prepared (3), and in other U.S. Department of Agriculture publications by presenting newly compiled compositional data on the total iron content of foods commonly eaten in this country. Some of the earlier data were based on older, less reliable methods and some were based on relatively few samples. Also, because of the lack of sufficient analytical data, previously published values for iron in most meat products had been calculated as a function of protein as discussed in Appendix B of the 1963 version of AH-8 (3).

Iron values are given here for items in food groups for which sections of the revised AH-8, Composition of Foods...Raw, Processed, and Prepared, have not yet been published. These values were obtained from summaries compiled by the staff at the Consumer Nutrition Division, from data on file and from the USDA Nutrient Data Bank. The values reported here are summarized from data obtained by using improved, iron-specific analytical methods. Sources of data were the published literature, government and academic publications, and industrial and analytical laboratory reports.

For the iron content of items in those food groups for which sections of AH-8 have been revised and published [Dairy and Egg Products $(\underline{4})$, Spices and Herbs $(\underline{5})$, Baby Foods $(\underline{6})$, Fats and Oils $(\underline{7})$, Poultry Products $(\underline{8})$, Soups, Sauces, and Gravies $(\underline{9})$, Sausages and Luncheon Meats $(\underline{10})$, and Breakfast Cereals $(\underline{11})$], the appropriate sections should be consulted 3 .

This provisional report will be superseded by subsequent sections of the revised AH-8 as they are published. The values in these future handbook sections will incorporate additional data received after preparation of this report. Therefore, some revision and additions to the iron values presented here should be anticipated in the future sections.

¹The author is a Research Chemist with the Consumer Nutrition Division, Human Nutrition Information Service.

²Underlined numbers in parentheses refer to Literature Cited, p. 15.

³The revised section on Fruits and Fruit Juices (AH-8-9) was published while this report was in press.

RELIABILITY OF VALUES

Many factors affect the iron content of foods. Content may vary with the time and location of harvest of the raw food. Some processing procedures remove iron from the food while others inadvertently add the nutrient by contamination. Differences in product formulation among manufacturers are another source of iron variability.

The available data and information for iron in the foods listed were not equally satisfactory for deriving values. The level of reliability of the values published in this report is indicated in several ways. Shown are the number of observations on which the mean value is based and the corresponding sample standard error (if the number of samples is greater than two). Also included is a confidence code.

Confidence codes are for use in food tables and in provisional nutrient tables. The purpose of these codes is to give a user an indication of the confidence he can have in the mean values given in these tables. The codes are based on a critical evaluation of the data sets from which the mean values were derived. A quality index (0, 1, 2, or 3) for the data from each data set is assigned by using the criteria in table 1, and the selection and meaning of the confidence codes are shown in table 2.

TABLE 1.--CRITERIA FOR QUALITY INDEX

Evaluation	Documentation of analytical method	Sample handling and appropriateness of analytical method	Quality control
0	None	Totally incorrect handling	No dupli- cates
1	Unpublished, but written	No documentation	Duplicate aliquots
2	Published, but modified	Reasonable, docu- mented common technique	Duplicate samples
3	Complete pub- lished writeup	Extensive docu- mented testing and appropriate method was used	Standard reference materials, spikes, recoveries, or blind duplicates

The lowest value for any criterion becomes the limiting quality index for the data from each data set. The sum of the quality indices from all the data sets used to obtain the overall mean value is the basis for selecting the confidence code for that mean value.

Sum of quality indices	Confidence code	Meaning of confidence code
<u>></u> 6	a	The user can have confidence in the mean value.
3-5	Ъ	The user can have some confidence in the mean value; however, some questions have been raised about the value or the way it was obtained.
1-2	С	There have been some serious questions raised about this value. It should be considered only as a best estimate of the level of this nutrient in this food.

The values reported in table 3 are the means of the data from two or more sources of data in which the mean value for each source does not differ from the overall mean by more than 30 percent. Other values are designated by one or two asterisk(s). A single asterisk (*) denotes that the data are from a single source. Two asterisks (**) denote that the data are from two or more sources, but the mean from at least one source differs from the overall mean by more than 30 percent.

The data presented in this table, and in food composition tables in general, are intended to represent values of the nutrient content of food on a nationwide, year-round basis. The information on the reliability of each value in this table should be used to assess the confidence in how closely the iron content of a food sample is represented by that value.

DESCRIPTION OF THE TABLE

In table 3, each food item is described and the mean iron content in milligrams per 100 grams of the edible portion of the food is given. The sample standard error and the total number of observations are also given. Next are the confidence code and asterisk(s), where appropriate. In the last column, the item numbers are given for those foods that correspond to items in the 1963 edition of AH-8. Dashes in this column denote there was no corresponding food or no value for iron was given in AH-8.

In general, foods that provided less than 2 percent of the U.S. Recommended Daily Allowance (U.S. RDA) for iron per serving were not included in the table. This corresponds to 0.36 milligram per serving and is the level below which, according to Federal

regulations (12), no specific value need be included on a nutrient label. Some foods with iron content below 0.36 milligram per serving were included in the table because values differ from those previously reported, because the food is consumed frequently or in large quantities, or to provide comparison with a closely related food.

"Enriched," as used in this report, refers only to iron and not to any other added nutrient. Foods with added iron must have the iron content per serving listed on the label expressed as the percent of the U.S. RDA. The following chart relating the percent of the U.S. RDA to milligrams is included to assist in estimating iron content from label claims:

Perc	en	t																															
U.S.	R.	D.	1																												I	ron	
																															(1	ng)	
2					•			•	•				•		•		•	•					•					•			0.	. 36)
4	•					•	۰	•		•		•		•								•	•	•	•				۰			. 72	1
8																															1.	. 4	
10	•									•	•		•	•		•								•	•						1.	. 8	
15					•						• 1		•	•								•				 		٠			2	7	
25										•			•						0				0 (• (4.	. 5	
45								•	•						•	•			•												8	. 1	
50	•									•															•						9.	. 0	
100					•			•	•				•		•						•										18.	. 0	

Actual iron content may be higher than that claimed on the label as a consequence of the compliance regulation $(\underline{12})$.

IRON BIOAVAILABILITY The values in table 3 are for the total iron content of the food items and do not take into consideration the bioavailability of the iron in the foods. A practical model has been developed for estimating the amount of available iron in a meal (2, 13, 14).

### BAKERY PRODUCTS Breads: 1	AH-8 tem No (1963)	Confi- dence code ¹	100 grams Number of samples	of iron in Standard error	Amount Mean	Food	Item No.
Breads: 1		to taxonomines announced code to our resistancement			Milligrams		
1 Cracked wheat						BAKERY PRODUCTS	
1 Cracked wheat						Breads:	
2 French, enriched	444	b**	4	0.42	2.6		1
3 Mixed grain. 3.2 .09 136 a** 4 Raisin. 2.9 .29 .11 b Rye: 5 Pumpernickel. 2.9 .19 4 b 6 Regular. 2.7 .10 43 b 8 White, enriched. 3.0 .02 445 a 9 Whole wheat. 3.2 .15 27 a 10 Danish pastry. 1.8 .10 9 b 11 English muffins, plain. 2.8 .09 25 a** Rolls: 12 Dinner, enriched. 3.1 .07 110 a 13 Frankfurter or hamburger, enriched. 3.0 .03 250 a 14 Rye. 2.8 (²) 2 b 15 Tortillas, corn. 1.9 .06 6 c* BEEF 16 Hamburger, lean, cooked. 2.7 .16 4 b* 17 Lean meat, cooked. 2.7 .08 79 b* 18 Liver, fried. 5.7 1.2 5 b* BEVERAGES Alcoholic: 19 Beer01 .001 66 a** Wines: 20 Red94 .03 172 a** 21 White57 .04 208 a** 22 Carbonated, nonalcoholic07 .01 113 c* Chocolate-flavored beverage powders (add milk): 23 Plain. 3.4 .31 19 a**	446	a	38	.12	2.8	French, enriched	2
Raisin		a**		• 09	3.2		
S	452	Ъ	11	. 29	2.9		4
Segular						Rye:	
6 Regular	456	Ъ	4	.19	2.9		5
8 White, enriched	454	Ъ	43	.10	2.7	-	6
9 Whole wheat 3.2 .15 27 a 10 Danish pastry 1.8 .10 9 b 11 English muffins, plain. 2.8 .09 25 a** Rolls: 12 Dinner, enriched 3.1 .07 110 a 13 Frankfurter or hamburger,		Ъ	140	.05	3.5	Wheat	7
10 Danish pastry 1.8 .10 9 b 11 English muffins, plain 2.8 .09 25 a** Rolls: 12 Dinner, enriched 3.1 .07 110 a 13 Frankfurter or hamburger,	461	а	445	.02	3.0	White, enriched	8
11 English muffins, plain. 2.8 .09 25 a** Rolls: 12 Dinner, enriched. 3.1 .07 110 a 13 Frankfurter or hamburger,	471	а	27	.15	3.2	Whole wheat	9
Rolls: 12	1899	Ъ	9	.10	1.8	Danish pastry	10
13 Frankfurter or hamburger, enriched		a**	25	.09	2.8		11
enriched	1902	а	110	• 07	3.1		
14 Rye	1902	а	250	.03	3.0	9 .	
## BEEF ### BEEF 16 Hamburger, lean, cooked		Ъ	2	(²)	2.8	Rye	14
16 Hamburger, lean, cooked		c*	6	.06	1.9	· ·	15
17 Lean meat, cooked						BEEF	
17 Lean meat, cooked	368	h*	4	.16	2.7	Hamburger, leap, cooked	16
BEVERAGES Alcoholic: 19 Beer		_					
Alcoholic: 19	1267	_				-	
19 Beer						BEVERAGES	
19 Beer						Alcoholic:	
21 White	394	a**	66	.001	.01	Beer	19
21 White	401	a**	172	•03	. 94	Red	20
Chocolate-flavored beverage powders (add milk): 23 Plain	401	a**		• 04	. 57		21
beverage powders (add milk): 23 Plain	402 to	c*	113	.01	• 07	Carbonated, nonalcoholic	22
beverage powders (add milk): 23 Plain	409					Chanalata flavorod	
23 Plain 3.4 .31 19 a**							
	779	2**	1 0	3.1	2 /		23
	119						
25 Cocoa mix powder (add water) 1.1 .11 9 a	780						

See footnotes at end of table.

Continued--

Item No.	Food	Amount Mean	of iron in Standard error	100 grams Number of samples	Confi- dence code ¹	AH-8 Item No. (1963)
		Milligrams				
	Coffee:					
26 27	<pre>Instant, powder Ground, brewed Tea, instant, powder:</pre>	3.7	0.51	5 1	a** b*	799
28	Sweetened	.15	.01	3	b*	
29	Unsweetened	3.8	·01 (²)	1	b*	2276
	FISH PRODUCTS 3					
	Crustaceans:					
30	Crab, blue, raw meat Shrimp:	. 58	• 07	12	Ъ	
31	Raw meat	1.8	• 42	6	b*	2042
32	Canned, solids, in water Finfishes: Raw fillet:	1.7	.38	6	b*	2045
33	Bass, striped	. 84	(²)	1	c*	
34	Cod, Atlantic	• 43		3	b**	794
35	Flatfishes	.31	.02	13	а	1018
36	Ocean perch, Atlantic	. 92		24	b**	1396
37	Salmon, sockeye	• 64	(²)	2	b*	
38	Solids: Herring, Atlantic, in oil	3.1	. 34	4	c*	
39	Salmon, sockeye, in water Solids and liquid:	. 78		20	a**	
40	Salmon, pink, in water	.83	.04	25	b*	1955
41	Sardines, in tomato sauce Tuna, in water or oil:	2.4	• 09	29	Ъ	1976
42	Light meat	1.5		107	a**	
43	White meat Mollusks, raw meat:	. 56	.06	35	а	
44	Clam, hard shell	3.0	.15	106	Ъ	771
45	Oyster, Eastern	6.5	. 29	164	Ъ	1443
	FRUITS AND FRUIT JUICES 3					
	Apples:					
46	Raw	.18		119	a**	13
47	Canned, sliced	. 23		6 37	b* a**	21
48 49	DriedJuice, canned	1.4 .37		37 11	a^^ h * *	27
47	Juice, camileu	• 37	• 0 3	1.1	D	2,

Continued--

See footnotes at end of table.

Item No.	Food	Amount Mean	of iron in Standard error	100 grams Number of samples	Confi- dence code ¹	AH-8 Item No. (1963)
		Milligrams				
50	Applesauce, canned, sweetened Apricots:	0.35	0.03	43	a * *	29
51	RawCanned:	•54	.08	31	a **	30
52	Water pack	•54	(²)	1	b*	32
53	Juice pack	.30	.04	8	a**	33
54	Light	.39	.03	37	b*	34
55	Heavy	.30		156	а	35
56	Dried, sulfured	4.7	.18	26	a**	39
57	Nectar, canned	•38	•02	68	a**	43
58	Avocados, raw	1.0	.12	54	b**	64
59	Bananas, raw	•31	.02	108	a**	141
60	Blackberries, raw	.44		16	c*	417
	Blueberries:					
61	Raw	.16	.01	114	2**	424
62	Frozen, sweetened	.39		3	c*	428
63	Cherries, sour, red, raw	.32	.01	347	a**	662
64	Raw	.39	.02	57	a**	663
65	Water pack	.36	(²)	1	c*	669
66	Juice pack	.58		6	c*	
67	Sirup pack, heavy	.35		82	b*	671
68	Frozen, sweetened	•35	•04	3	c*	
69	Raw	.20	•02	16	C*	920
70	Canned, jellied sauce	•22	(²)	2	c*	923
71	Juice drink	.16	.01	4	c*	922
72	Raw	1.2	.23	8	a	944, 945
73	Dried, Zante	3.2	.16	37	а	
74	Dates, dried, pitted	1.2	.19	17	b**	952
75	Canned, sirup pack, heavy	•28	•02	18	b*	1005
76	Dried	2.2	.16	36	a**	1003
77	Fruit cocktail, canned:	0.5	0.0	1.0	b**	1001
77 78	Water pack	•25	.03	13	_	1021
76 79	Juice pack	•21	.03	7	b**	1000
	Sirup pack, heavy Fruit for salad, canned:	.29	.01	160	a	1023
80	Juice pack	.25	.09	7	b**	
81	Sirup pack, heavy	•28	•01	92	a	1027
0					Cont	inued

Item No.	Food	Amount	of iron in Standard error	100 grams Number of samples	Confi- dence code ¹	AH-8 Item No. (1963)
		Milligrams				
	Grapefruit:					
82	Raw, pink or white	0.07	0.01	53	a**	1053
83	Juice pack	.21	.05	5	c*	
84	Sirup pack, light	.40	.03	14	b*	1070
85	Unsweetened	.20	.02	17	b**	1071
86	SweetenedGrapes:	.36	.03	16	b*	1072
87	Raw, European	.26	.02	44	a**	1085
88	Canned, sirup pack, heavy	.94	(2)	2	b**	1087
89	Juice, canned, purple Mandarin oranges:	. 24	.03	17	a* *	1088
90	RawCanned:	.10	.01	16	C*	2262
91	Juice pack	.26	(²)	2	c*	
92	Sirup pack, light	.37	.03	32	b*	
93	Canned, sirup pack, heavy	.36	.03	16	b*	
94	Frozen, sweetened	.28	.04	3	c*	
95	Muskmelon, cantaloup, raw	.21	.02	77	a**	1358
96	Nectarines, raw	•15	•01	38	Ъ	1374
97	Raw	.08	.004	91	b**	1420
98	Juice, frozen, reconstituted	.11	.003	457	c*	1437
99	Papayas, raw	.10	•02	20	a * *	1471
100	Raw	.11	.01	84	a * *	1479
101	Water pack	.32	•04	16	Ъ	1480
102	Juice packSirup pack:	•27	.03	17	Ъ	1481
103	Light	.36	.03	19	b*	1482
104	Heavy	.27	.01	316	а	1483
105	Dried, sulfured	4.1	.12	24	Ъ	1487
106	Frozen, sweetened	.37	.07	3	c *	1490
107	Nectar, canned Pears:	.19	•04	5	b**	1491
108	Raw	•25	.01	42	a**	1502
109	Water pack	.21	.02	12	c*	1504
110	Juice packSirup pack:	.29	.06	7	b**	1505
111	Light	.28	.01	20	b*	1506
	Heavy	.22	.01	105	_	1507

See footnotes at end of table.

Item No.		Amount Mean	of iron in Standard error	100 grams Number of samples	Confi- dence code ¹	AH-8 Item No. (1963)
		Milligrams				
113	Dried, sulfured	2.1	0.09	18	b	1509
114	Nectar, canned	.26	.03	8	a	1512
115	Raw	• 37	• 02	15	а	1611
116	Juice pack	.28	.01	676	a**	1614
117	Sirup pack, heavy	. 38	.01	185	a**	1616
118	Juice, canned, unsweetened	. 26	.01	77	a**	1619
119	Plums, canned, juice pack Prunes:	• 34	.04	6	C*	
120	Canned, sirup pack, heavy	.41	.03	20	b**	
121	Dried	2.5	.07	193	a**	1818
122	Juice, canned	1.2	• 20	30	a**	1821
123	Seeded (Muscat) Seedless (Thompson):	2.6	• 29	34	b**	
124	Golden	1.8	.03	22	b*	
125	Natural	2.1	.09	51	a**	1846
126	Raw	.57	.03	19	Ъ	1849
127	Frozen, sweetened	. 65	.10	3	c*	1852
128	Rhubarb, raw	• 22	• 02	33	b**	1865
129	RawFrozen:	•38	.04	84	a**	2217
130	Unsweetened	.75	. 28	6	b**	
131 132	Sweetened, sliced Tropical fruit salad,	• 59	• 04	18	a**	2219
	canned, sirup pack, heavy	• 52	.02	25	b*	
133	Watermelon, raw	• 17	.01	45	a **	2424
	GRAIN PRODUCTS					
134	Barley, pearled, uncooked	2.1	• 15	5	C *	145, 146
135	Bulgur (parboiled wheat), uncooked	5.6	. 74	14	a**	497, 498, 499
	Cornmeal:					
136 137	Whole ground	1.8 4.3	.05 .07	243 144	b* b	883 885 1298 1377
	,				Cont	inued

Item No.	Food	Amount Mean	of iron in Standard error	100 grams Number of samples	Confi- dence code ¹	AH-8 Item No. (1963)
		Milligrams				
138	Pasta, enriched, uncooked	3.9	0.25	18	а	1298, 1377, 2157
139	Popcorn, popped with oil	3.0	(²)	2	b *	1655
140	Brown	1.8	•23	3	а	1869
141	Unenriched	1.2	. 20	6	Ъ	1877
142	Enriched	4.6	• 27	18	a * *	1871, 1873,
	Spaghetti. See Pasta, item 138. Wheat:					1875 2157
143	Bran, crude	10.8	• 66	16	а	2446
144	Whole	4.3	.10	21	а	2435
145	All purpose, enriched	3.5 ⁴	.06	79	а	2439
146	Germ, crude	5.6	• 48	13	a**	2447
	LAMB, VEAL, AND GAME					
147	Frog, leg, raw	1.9	(²)	2	c *	1020
148	Chop, lean meat, broiled	1.8	.11	27	b*	1217
149	Leg, lean meat, roasted	2.2	• 12	29	b*	1187
150	Veal, lean meat, raw	. 67	.11	4	b**	
	LEGUME PRODUCTS 3					
	Beans, common: Boiled:					
151	Great northern	2.3	.17	16	a**	
152	Kidney	3.6	. 27	14	а	
153	Navy	2.6	.08	12	b*	
154	Pink	2.4	.17	5	а	
155	Pinto	3.0	.16	16	а	
156	White Canned:	3.0	• 24	5	a**	155
157	Kidney	1.3	• 04	38	Ъ	
158	Pinto	2.0	.83	4	a**	
159	Red White, with sauce:	1.5	• 0 5	11	c *	161
160	Plain	1.5	.03	52	а	
161	With beef	1.6	.08	10	b*	

Continued--

See footnotes at end of table.

Banda	With frankfurters	1.7 1.6 2.6 3.1 2.2 1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	0.09 .02 .06 .16 .16 (²) .17 (²) .09 .36 .16 .05 .24	26 182 13 14 6 1 17 2 16 17 3 3 16	baaa*** aa*** b** abc** a*** b*	 756 904 1254
163 Bean Billow 164 165 166 Chillow 168 Billow 170 Chillow 171 Billow 172 173 174 Len Pean 175 Billow 177 Pean 178 Pean 179 Soy 180 Soy 181 Bee Ding	With pork	2.6 3.1 2.2 1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	.02 .06 .16 .16 (²) .17 (²) .09 .36 .16 .05 .24	182 13 14 6 1 17 2 16 17 3 3 16	a a ** * * * * * * * * * * * * * * * *	756 904
163 Bean Billow 164 165 166 Chillow 168 Billow 170 Chillow 171 Billow 172 173 174 Len Pean 175 Billow 177 Pean 178 Pean 179 Soy 180 Soy 181 Bee Ding	With pork	2.6 3.1 2.2 1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	.02 .06 .16 .16 (²) .17 (²) .09 .36 .16 .05 .24	182 13 14 6 1 17 2 16 17 3 3 16	a a ** * * * * * * * * * * * * * * * *	756 904
163 Bean Billow 164 165 166 Chillow 168 Billow 170 Chillow 171 Billow 172 173 174 Len Pean 175 Billow 177 Pean 178 Pean 179 Soy 180 Soy 181 Bee Ding	With pork	2.6 3.1 2.2 1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	.02 .06 .16 .16 (²) .17 (²) .09 .36 .16 .05 .24	13 14 6 1 17 2 16 17 3 3 16	a a** c** b* a** c** a** c** a**	756 904
Banda	ns, lima: piled: Baby	3.1 2.2 1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	.16 .16 (²) .17 (²) .09 .36 .16 .05 .24	14 6 1 17 2 16 17 3 3 16	a** c** b* a** c** a** c** a**	756 904
164 165 166 C. 167 Bro. Chi. 168 B. 169 C. 170 Chi. Cow; 171 B. C. 172 173 174 Len Pear 175 B. 176 R. 177 Pear 178 Pear 179 Soy 180 Soy	Baby Large	3.1 2.2 1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	.16 .16 (²) .17 (²) .09 .36 .16 .05 .24	14 6 1 17 2 16 17 3 3 16	a** c** b* a** c** a** c** a**	756 904
165 166 C. 167 Bro. Chi 168 B. 169 C. 170 Chi Cow 171 B C. 172 173 174 Len Pear 175 B. 176 R. 177 Pear 178 Pear 179 Soy 180 Soy	Large	3.1 2.2 1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	.16 .16 (²) .17 (²) .09 .36 .16 .05 .24	14 6 1 17 2 16 17 3 3 16	a** c** b* a** c** a** c** a**	756 904 1254
166 C. 167 Broch Chi 168 B. 169 C. 170 Chi Cow 171 B. C. 172 173 174 Len Pear 175 B. 176 R. 177 Pear 178 Pea. 179 Soy 180 Soy	anned, large	2.2 1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	.16 (²) .17 (²) .09 .36 .16 .05 .24	6 1 17 2 16 17 3 3 16	c** b* a** b c* a** c* a**	756 904 1254
167 Bro. Chi 168 B 169 C: 170 Chi Cow 171 B C: 172 173 174 Len Pea: 175 B 176 R 177 Pea: 178 Pea: 179 Soy 180 Soy	ad beans, canned	1.0 3.0 1.2 1.9 3.8 .78 1.4 3.6	(2) .17 (2) .09 .36 .16 .05 .24 (2)	1 17 2 16 17 3 3 16	b* a** b c* a** a** a**	756 904 1254
Chi 168 B 169 C 170 Chi Cow 171 B C 172 173 174 Len Pear 175 B 176 R 177 Pear 178 Pear 179 Soy 180 Soy	ckpeas (garbanzos): ciled	3.0 1.2 1.9 3.8 .78 1.4 3.6	.17 (²) .09 .36 .16 .05 .24	17 2 16 17 3 3 16	a** b c* a** c* a**	756 904 1254
169 C. 170 Chi. Cow. 171 B C. 172 173 174 Len Pear 175 B 176 R 177 Pear 178 Pear 179 Soy 180 Soy	anned	1.2 1.9 3.8 .78 1.4 3.6	(²) .09 .36 .16 .05 .24	2 16 17 3 3 16	b c* a** a** c* a**	756 904 1254
170 Chi Cow 171 B Ci 172 173 174 Len Pear 175 B 176 R 177 Pear 178 Pear 179 Soy 180 Soy	li, with beans, canned peas (blackeye peas): piled anned: Plain With pork pils, boiled puts: piled pasted with skins	1.9 3.8 .78 1.4 3.6 1.0 2.1	.09 .36 .16 .05 .24	16 17 3 3 16	c* a** a** c* a**	756 904 1254
Cowy 171 B C3 172 173 174 Len Pear 175 B 176 R 177 Pear 178 Pear 179 Soy 180 Soy	peas (blackeye peas): piled piled With pork pils, boiled piled piled	3.8 .78 1.4 3.6	.36 .16 .05 .24	17 3 3 16	a** a** c* a**	904 1254
171 B C3 172 173 174 Len Pear 175 B 176 R 177 Pear 178 Pear 179 Soy 180 Soy	poiled Anned: Plain With pork cils, boiled nuts: poiled pasted with skins	.78 1.4 3.6 1.0 2.1	.16 .05 .24	3 3 16	a** c* a**	 1254
172 173 174 Len Pear 175 B 176 R 177 Pear 178 Pear 179 Soy 180 Soy	Plain With pork cils, boiled nuts: piled pasted with skins	1.4 3.6 1.0 2.1	.05 .24	3 16	c* a**	1254
173 174 Len Pear 175 B 176 R 177 Pear 178 Pear 179 Soy 180 Soy	With pork cils, boiled nuts: piled pasted with skins	1.4 3.6 1.0 2.1	.05 .24	3 16	c* a**	1254
174 Len Pear 175 B 176 R 177 Pear 178 Pear 179 Soy 180 Soy	tils, boiled nuts: poiled pasted with skins	3.6 1.0 2.1	•24 (²)	16	a**	
175 B 176 R 177 Pea 178 Pea 179 Soy 180 Soy	pailed	2.1		1	b *	1494
176 R 177 Pea: 178 Pea: 179 Soy 180 Soy	pasted with skins	2.1		1	р.,	1474
177 Pear 178 Pear 179 Soy 180 Soy				9	а	1495
178 Pea 179 Soy 180 Soy 181 Bee Din	int putter, chalky of smooths.	1.7	.02	164	a**	1473
179 Soy 180 Soy 181 Bee Din		1.1	.03	12	ъ*	1533
180 Soy	s, split, boiled beans, fermented product, miso	3.6	(²)	2	b**	2142
Din	pean curd (tofu)	1.8	•25	3	b	2145
Din	MIXED DISHES 3					
	stew, canned	1.3	.21	8	a**	372
182 B	ners, frozen:					
	eef	1.4	.08	17	a**	
	ish	.73	.04	12	a	
184 P	oultry	1.1	.06	16	a	
	nrimp foods:	1.4	(2)	2	Ъ	ec es es
	neeseburger	2.2	•22	5	a**	
	sh sandwich	1.0	.15	4	a**	
	amburger	2.6	.27	5	а	
189 н	ot dog	1.6	(²)	2	Ъ	
_	pies, frozen:	1.5	.47	3	b* *	383
	ef			6	D^^ Ъ**	383
191 P 192 T	oultry	.84 .76	·14 (2)	5	D** Ъ**	

See footnotes at end of table.

TABLE 3.--IRON CONTENT OF EDIBLE PORTION OF FOOD--Continued

Item No.	Food	Amount Mean	of iron in Standard error	100 grams Number of samples	Confi- dence code ¹	AH-8 Item No. (1963)
		Milligrams				
	NUTS AND SEEDS					
193 194 195 196 197 198 199 200 201	Almonds, dried	4.5 6.4 5.0 8.1 2.6 6.7 10.0 4.5 3.5	0.09 .21 (²) (²) .37 .55 .77 1.4 .54	62 14 2 2 14 13 4 3	a b** b** b a** c c** a**	8 628 790 1008 1536 1626 1833 2236 2421
	PORK PRODUCTS				_	
202 203	Cured: Bacon, fried Ham (approx. 11% fat), roasted. Fresh:	1.7 1.3	•14 •05	34	a** b*	126
204205206	Leg, shoulder, or sirloin, lean, roasted Liver, raw Loin chop, lean, broiled	1.2 22.1 .81	.03 1.6 .04	59 33 12	b a ** b	1273 1720
	SUGARS AND SWEETS					
207 208 209 210 211	Candy, chocolate: Milk, plain	1.2 2.8 2.2 5.5 2.6	.08 .29 .20 .62	7 6 3 5 15	a a** b* a a**	587 585 586 759 760
212	Cocoa, dry powder: Dutch	15.0	2.6	6	b*	782,
213	Plain	11.1	1.4	6	b*	784, 786 781, 783, 785
214 215	Molasses, cane: Blackstrap Light	25.2 5.8	3.2 1.1	4 4	b b**	1341 1339
					Cont	inued

Item No.		Amount Mean	of iron in Standard error	100 grams Number of samples	Confi- dence code ¹	AH-8 Item No. (1963)
		Villigrams	mellikalitik artitlasini jarany meljandak mytjaranja, mijarat			
	Sirups:					
216	Cane	3.4	(²)	2	Ъ	2048
217	Dark	1.0	(²)	1	c*	
218	Light	.10	(²)	1	c*	6200 0000 6000
219	Maple	1.2	(²)	1	c*	2049
220	Sorghum	14.0	5.1	4	C*	2050
221 222	Corn sirup with sugar Cane and corn sirups	•10	(²)	1	C*	400 60a 60a
	with sugar	2.5	(²)	1	c*	Class Gate dates
223	Cane, corn, and maple sirups.	2.7	(²)	1	c*	
224	Sugar, beet or cane, brown	2.7	.29	5	a**	2229
	VEGETABLE PRODUCTS ³					
225	Asparagus, green, canned Beans, canned:	. 54	•03	171	a * *	48
226	Lima	1.6	.05	137	a**	166
227	Snap, green or yellow	.88	.04	1426	a**	185,
221	shap, green or yerrow	• 00	• 04	1420	a····	197
228	Bean sprouts (mung), raw Beets:	1.6	•32	4	a**	180
229	Raw	. 91	.30	5	a**	384
230	Canned	.67	.03	190	a**	386
231	Broccoli, raw	1.1	• 30	9	а	483
232	Brussels sprouts, raw	1.4	(²)	2	b**	489
233	Cabbage, common varieties, raw Carrots:	.56	•15	29	a**	512
234	Raw	.51	.02	217	a**	619
235	Canned	.63	.03	157	a**	621
236	Cauliflower, raw	. 58	.09	4	a**	630
237	Celery, Pascal type, raw	. 48	• 22	19	a**	637
238	Collards, frozen	1.1	•11	13	a**	810
239	Canned, regular pack	• 33	.01	229	a**	847, 848,
0/0	n 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	, -	0.5	1.0	45.45	849
240	Frozen, kernels, cut off cob	• 45	.05	16	a**	856
241	Cucumber, pared, raw	.30	.05	.8	a	943
242	Eggplant, raw	. 54	.25	4	b**	986
243	Kale, leaves only, raw Lettuce, raw:	1.7	(²)	1	c*	1153
244	Iceberg	0.57	0.19	72	a**	1258
245	Romaine	1.1	(²)	1	C *	1257

Item No.	Food	Amount	of iron in Standard error	100 grams Number of samples	Confi- dence code ¹	AH-8 Item No. (1963)
		Milligrams				
	Mushrooms:					
246	Raw	1.7	0.20	26	a**	1354
247	Canned, drained solids	. 79	•08	6	b**	
248	Mustard greens, raw	1.5	(²)	2	b**	1366
249	Okra, raw	.80	(2)	1	C*	1402
250 251	Mature, raw	.36	.14	44	a**	1412
	entire top, raw	1.9	1.1	3	a**	1415
252	Parsley, raw	1.6	(²)	2	ъ	1472
253	Parsnips, raw	. 58	(²)	2	Ъ	1473
254	Peas, sweet, canned	1.1	.02	478	a**	1523
255	Peas and carrots, canned	.74	.02	165	а	
256	Peas and onions, frozen	1.5	(²)	2	c*	
257	Peppers, sweet, raw	1.3	.82	5	a**	1545
258	Raw	.76	.04	84	a**	1785
259	Boiled	• 35	.08	6	c*	1788
260	Canned	1.0	.13	30	ъ	1796
261	Pumpkin, canned	1.4	.10	106	a**	1832
262	Sauerkraut, canned	1.5	• 09	173	Ъ	1977
263	Raw	2.7	• 52	10	a**	2169
264	Canned	1.7	• 04	230	а	2171
265	Summer varieties	. 43	.03	11	Ъ	2191
266	Winter varieties	• 54	.07	5	C*	2199
267	All commercial varieties, raw	• 59	.03	40	a**	2246
268	Canned, sirup pack, light Tomatoes:	. 89	• 05	70	b*	2252
269	RawCanned:	. 48	.01	141	a**	2282
270	Stewed	. 61	.02	229	a**	
271	Whole	.60	.02	405	a**	2284
272	Tomato juice, canned	. 55	.02	175	a**	2288
273	Tomato paste	3.0	.23	330	a**	2295
274	Tomato sauce, plain Turnip greens:	.72	.01	525	a**	000 GE
275	Raw	1.1	(²)	1	C*	2354
275	Canned	1.5	.13	5	c*	2357
277	Vegetable juice, canned	.44	•03	13	ъ	2396
211	vegerante Juice, canned	• 44	• 03	13	U	2370

See table 2, p. 3 for meanings of confidence codes.

No standard error is given when the number of samples is two or less.

Data for all canned items are for solids and liquid unless otherwise specified.

This value is derived from analytical data. The new enrichment standard for flour (effective July 1983) will be 4.4 mg iron per 100 g.

LITERATURE CITED

- (1) Pao, E. M., and Mickle, S. J.
 1981. Problem nutrients in the United States. Food
 Technology. 35:58-69.
- (2) National Academy of Sciences National Research Council.
 1980. Recommended dietary allowances. 9th ed., rev.,
 185 pp. Washington, D.C.
- (3) Watt, B. K., and Merrill, A. L. 1963. Composition of foods...raw, processed, prepared. U.S. Dept of Agr., Agr. Handb. No. 8 (rev.), 190 pp.
- (4) Consumer and Food Economics Institute.

 1976. Composition of Foods: Dairy and Egg Products; Raw,
 Processed, Prepared. U.S. Dept. of Agr., Agr.
 Handb. No. 8-1, 157 pp.
- 1977. Composition of Foods: Spices and Herbs; Raw, Processed, Prepared. U.S. Dept. of Agr., Agr. Handb. No. 8-2, 51 pp.
- 1978. Composition of Foods: Baby Foods; Raw, Processed,
 Prepared. U.S. Dept. of Agr., Agr. Handb. No. 8-3,
 231 pp.
- 1979. Composition of Foods: Fats and Oils; Raw, Processed,
 Prepared. U.S. Dept. of Agr., Agr. Handb. No. 8-4,
 142 pp.
- (8)

 1979. Composition of Foods: Poultry Products; Raw,
 Processed, Prepared. U.S. Dept. of Agr., Agr.
 Handb. No. 8-5, 330 pp.
- 1980. Composition of Foods: Soups, Sauces, and Gravies;
 Raw, Processed, Prepared. U.S. Dept. of Agr.,
 Agr. Handb. No. 8-6, 228 pp.
- (10) Consumer Nutrition Center.

 1980. Composition of Foods: Sausages and Luncheon Meats;
 Raw, Processed, Prepared. U.S. Dept. of Agr., Agr.
 Handb. No. 8-7, 92 pp.
- (11)

 1982. Composition of Foods: Breakfast Cereals; Raw,
 Processed, Prepared. U.S. Dept. of Agr., Agr.
 Handb. No. 8-8, 162 pp.
- (12) U.S. Food and Drug Administration. Food Labeling.
 1981. Nutrition labeling of food. Code of Federal
 Regulations, 21 Part 101, Section 101.9.
- (13) Monsen, E. R., Hallberg, L., Layrisse, M., Hegsted, D. M., Cook, J. D., Mertz, W., and Finch, C. A.

 1978. Estimation of available dietary iron. Am. J. Clin.
 Nutr. 31:134-141.
- (14) Monsen, E. R., and Balintfy, J. L.

 1982. Calculating dietary iron bioavailability:
 Refinement and computerization. J. Am. Dietet. A.
 80:307-311.

United States Department of Agriculture Human Nutrition Information Service Washington, D.C. 20250

OFFICIAL BUSINESS
Penalty for Private Use, \$300

Postage and Fees range 1023001067
U.S. Department of Agriculture
AGR -101